

Eventlabel	MAR2013_sel_a_f_09
Campaign	Marion Island 2013
Species	Southern elephant seal (<i>Mirounga leonina</i>)
Age	adult; 9 years
Sex	Female
Number	
Length	Not noted
Girth	Not noted
Weight [estimated]	
Weight [calculated]	
Weight [measured]	
ARGOS PTT ID	78114
Transmitter type	SRDL 9000 CTD
Manufacturer	SMRU
PTT Serial Number	112850
PTT Software	
Setting protocol	Software specification for CTD_GEN_11A deployment (Standard CTD) Valid for dates in years 2011 to 2014 Transmitting via ARGOS Page transmission sequences: Until day 1464: 0 0 1 0 0 2 3 0 0 4 5 An additional diagnostics page is sent every 30 transmissions Airtest for first 7 hours: Transmission interval is chosen randomly between 48 and 72 seconds Satellite availability (UTC): 00: -- on -- 01: -- on -- 02: -- on -- 03: -- on -- 04: -- on -- 05: -- on -- 06: -- on -- 07: -- on -- 08: -- on -- 09: -- on -- 10: -- on -- 11: -- on -- 12: -- on -- 13: -- on -- 14: -- on -- 15: -- on -- 16: -- on -- 17: -- on -- 18: -- on -- 19: -- on -- 20: -- on -- 21: -- on -- 22: -- on -- 23: -- on -- Transmission targets: 56000 transmissions after 365 days In Haulouts: ON (one tx every 1 min 20 secs) for first 5 hours then cycling OFF for 3 hours, ON for 2 hours Check sensors every 4 secs When near surface (shallower than 10m), check wet/dry every 1 sec Consider wet/dry sensor failed if wet for 7 days or dry for 99 days Dives start when wet and below 6m for 8 secs and end when dry, or above 6m Do not separate 'Deep' dives A cruise begins if there has been no dive for 9 mins A haulout begins when dry for 10 mins and ends when wet for 40 secs Dive shape (normal dives): 4 points per dive using broken-stick algorithm Dive shape (deep dives): none CTD profiles: max 2000 dbar up to 4 dbar in 2 dbar bins. Temperature: Collected, Stored. Valid range: -2.5 to 30.2 degC Conductivity: Collected, Not stored. Salinity: Calculated, Stored. Valid

range: 28.9 to 37.1 Fluorescence: Not collected.
Oxygen: Not collected.

Send the deepest upcast in each 6-hour period.
Minimum depth to trigger collection of cast: 1000m in hour 1 sensor every 1 seconds.
Each profile contains 16 cut points consisting of 8 fixed points, minimum depth, maximum depth, 6 broken-stick points. A set of fixed point is selected according to depth:

10,12,14,16,18,20,24,30
10,14,20,26,30,36,40,50
10,20,30,40,50,60,70,75
10,20,30,40,50,60,75,100
10,20,30,50,75,100,125,150
10,20,30,50,75,100,150,200
10,20,30,50,100,150,200,300
10,20,50,100,150,200,300,400
10,20,50,100,200,300,400,500
10,20,50,100,200,300,500,700
20,50,100,200,300,500,700,1000

groups of 3 (7.5 days): 10 = 40 bytes No Timelines Cruises: 50 = 200 bytes No Diving periods No Spot depths No Emergence records No Dive duration histograms No Max depth histograms No Depth & Temperature histograms CTD casts (7.5 days): 30 = 120 bytes No GPS fixes No Spot CTD's TOTAL 2560 bytes (of about 21000 available)

MAIN BUFFERS (in 8 or 24 Mb Flash): Dive in groups of 3 (10.4167 days @ 10mins/dive): 500 x 100 bytes = 50000 bytes No 'deep' dives Haulout: 50 x 16 bytes = 800 bytes 6-hour summaries in groups of 3 (7.5 days): 10 x 84 bytes = 840 bytes No Depth & Temperature histograms No timelines Cruise: 50 x 16 bytes = 800 bytes No diving periods No spot depths No emergence records No Duration histograms No Max depth histograms CTD casts (7.5 days): 30 x 156 bytes = 4680 bytes No GPS fixes No spot CTD's TOTAL 55 kb (from 8192 kb available)

PAGE CONTENTS (256 bits - 9 overhead): PAGE 0: PTT NUMBER OVERHEAD (28-bit code) -----[8 bits: 0 - 7]

PAGE NUMBER -----[3 bits: 8 - 10]

DIAGNOSTICS in format 0: Max depth ever: Lookup with 128 bins: <2.5,2.5-5,5-7.5,7.5-10,10-12.5,12.5-15,15-17.5,17.5-20,20-22.5,22.5-25,25-27.5,27.5-30,30-32.5,32.5-35,35-40,40-45,45-50,50-55,55-60,60-65,65-70,70-75,75-80,80-85,85-90,90-95,95-100,100-105,105-110,110-115,115-120,120-125,125-130,130-135,135-140,140-145,145-150,150-155,155-160,160-165,165-170,170-175,175-180,180-185,185-190,190-195,195-200,200-205,205-210,210-215,215-220,220-225,225-230,230-240,240-250,250-260,260-270,270-280,280-290,290-300,300-310,310-320,320-330,330-340,340-350,350-360,360-370,370-380,380-390,390-400,400-425,425-450,450-475,475-500,500-525,525-550,550-575,575-600,600-625,625-650,650-675,675-700,700-725,725-750,750-775,775-800,800-825,825-850,850-875,875-900,900-925,925-950,950-975,975-1000,1000-1025,1025-1050,1050-1075,1075-1100,1100-1125,1125-1150,1150-1175,1175-1200,1200-1225,1225-1250,1250-1275,1275-1300,1300-

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1325,1325-1350,1350-1375,1375-1400,1400-
1425,1425-1450,1450-1475,1475-1500,1500-
1550,1550-1600,1600-1650,1650-1700,1700-
1750,1750-1800,1800-1850,1850-1900,1900-
1950,1950-2000,2000-2050,2050-2100,2100-2150,
>2150 in units of 0.1 m (range: 0 to 2150 m) ---
-----[7 bits: 11 - 17] DIVE group in
format 0: Normal dives transmitted in groups
of 3 Time of start of last dive: max 5 days
12 hours @ 30 secs= 15840 tx as raw
14 bits in units of 1 (range: 0 to 16383 )
transmitted -- Max depth: -- not transmitted --
Dive duration: odlog 2/5 in units of 16
s (range: 0 to 7608 s) Mean speed: --
not transmitted -- Profile data (4
depths/times, 0 speeds): Depth
profile: Lookup with 128 bins: <2.5,2.5-5,5-
7.5,7.5-10,10-12.5,12.5-15,15-17.5,17.5-20,20-
22.5,22.5-25,25-27.5,27.5-30,30-32.5,32.5-35,35-
40,40-45,45-50,50-55,55-60,60-65,65-70,70-75,75-
80,80-85,85-90,90-95,95-100,100-105,105-110,110-
115,115-120,120-125,125-130,130-135,135-140,140-
145,145-150,150-155,155-160,160-165,165-170,170-
175,175-180,180-185,185-190,190-195,195-200,200-
205,205-210,210-215,215-220,220-225,225-230,230-
240,240-250,250-260,260-270,270-280,280-290,290-
300,300-310,310-320,320-330,330-340,340-350,350-
360,360-370,370-380,380-390,390-400,400-425,425-
450,450-475,475-500,500-525,525-550,550-575,575-
600,600-625,625-650,650-675,675-700,700-725,725-
750,750-775,775-800,800-825,825-850,850-875,875-
900,900-925,925-950,950-975,975-1000,1000-
1025,1025-1050,1050-1075,1075-1100,1100-
1125,1125-1150,1150-1175,1175-1200,1200-
1225,1225-1250,1250-1275,1275-1300,1300-
1325,1325-1350,1350-1375,1375-1400,1400-
1425,1425-1450,1450-1475,1475-1500,1500-
1550,1550-1600,1600-1650,1650-1700,1700-
1750,1750-1800,1800-1850,1850-1900,1900-
1950,1950-2000,2000-2050,2050-2100,2100-2150,
>2150 in units of 0.1 m (range: 0 to 2150 m)
not transmitted -- Surface duration: odlog
2/4 in units of 2.5 s (range: 0 to 588.75 s)
=== PAGE 1: PTT NUMBER OVERHEAD (28-bit code)
CRUISE group in format 0: Number of
records: raw 1 bits in units of 1 (range: 0 to
1 ) Cruise number: wraparound 4 bits in
units of 1 (range: 0 to 15 ) Start time: --
not transmitted -- End time: max 5 days 12
hours @ 2 mins= 3960 tx as raw 12 bits
in units of 1 (range: 0 to 4095 )
(recommended sell-by 5 days 11 hours)
transmitted -- -----[26 bits: 22 - 47]
time: max 5 days 12 hours @ 2 mins= 3960
cf. Max duration is 16 hours
Reason for end: -- not transmitted --
Contiguous: -- not transmitted -- -----
[25 bits: 48 - 72] SUMMARY group in format 0:
Transmitted in groups of 3 Record
could be in buffer for 7 days 12 hours
End time: max 7 days @ 6 hours= 28 tx
as raw 5 bits in units of 1 (range: 0 to 31 )
bits in units of 15.873 permille (range: 0 to

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1000 permille) Dive time: raw 6 bits in units
 of 15.873 permille (range: 0 to 1000 permille)
 32.5,32.5-35,35-40,40-45,45-50,50-55,55-60,60-
 65,65-70,70-75,75-80,80-85,85-90,90-95,95-
 100,100-105,105-110,110-115,115-120,120-125,125-
 130,130-135,135-140,140-145,145-150,150-155,155-
 160,160-165,165-170,170-175,175-180,180-185,185-
 190,190-195,195-200,200-205,205-210,210-215,215-
 220,220-225,225-230,230-240,240-250,250-260,260-
 270,270-280,280-290,290-300,300-310,310-320,320-
 330,330-340,340-350,350-360,360-370,370-380,380-
 390,390-400,400-425,425-450,450-475,475-500,500-
 525,525-550,550-575,575-600,600-625,625-650,650-
 675,675-700,700-725,725-750,750-775,775-800,800-
 825,825-850,850-875,875-900,900-925,925-950,950-
 975,975-1000,1000-1025,1025-1050,1050-1075,1075-
 1100,1100-1125,1125-1150,1150-1175,1175-
 1200,1200-1225,1225-1250,1250-1275,1275-
 1300,1300-1325,1325-1350,1350-1375,1375-
 1400,1400-1425,1425-1450,1450-1475,1475-
 1500,1500-1550,1550-1600,1600-1650,1650-
 1700,1700-1750,1750-1800,1800-1850,1850-
 1900,1900-1950,1950-2000,2000-2050,2050-
 2100,2100-2150, >2150 in units of 0.1 m (range: 0
 to 2150 m) SD max dive depth: odlog
 2/4 in units of 5 m (range: 0 to 1177.5 m)
 85,85-90,90-95,95-100,100-105,105-110,110-
 115,115-120,120-125,125-130,130-135,135-140,140-
 145,145-150,150-155,155-160,160-165,165-170,170-
 175,175-180,180-185,185-190,190-195,195-200,200-
 205,205-210,210-215,215-220,220-225,225-230,230-
 240,240-250,250-260,260-270,270-280,280-290,290-
 300,300-310,310-320,320-330,330-340,340-350,350-
 360,360-370,370-380,380-390,390-400,400-425,425-
 450,450-475,475-500,500-525,525-550,550-575,575-
 600,600-625,625-650,650-675,675-700,700-725,725-
 750,750-775,775-800,800-825,825-850,850-875,875-
 900,900-925,925-950,950-975,975-1000,1000-
 1025,1025-1050,1050-1075,1075-1100,1100-
 1125,1125-1150,1150-1175,1175-1200,1200-
 1225,1225-1250,1250-1275,1275-1300,1300-
 1325,1325-1350,1350-1375,1375-1400,1400-
 1425,1425-1450,1450-1475,1475-1500,1500-
 1550,1550-1600,1600-1650,1650-1700,1700-
 1750,1750-1800,1800-1850,1850-1900,1900-
 1950,1950-2000,2000-2050,2050-2100,2100-2150,
 >2150 in units of 0.1 m (range: 0 to 2150 m)
 (range: 0 to 7608 s) Avg surface
 duration: -- not transmitted -- SD
 surface duration: -- not transmitted --
 max dive depth: -- not transmitted --
 Max dive duration: -- not
 transmitted -- Avg surface duration: --
 not transmitted -- SD surface
 duration: -- not transmitted --
 Max surface duration: -- not transmitted --
 page 1 === PAGE 2: PTT NUMBER OVERHEAD (28-
 bit code) -----[8 bits: 0 - 7]
 PAGE NUMBER -----[3 bits: 8 -
 10] CTD PROFILE in format 0: End time:
 max 7 days @ 10 mins= 1008 tx as raw
 10 bits in units of 1 (range: 0 to 1023)
 dbar (range: 4 to 2050 dbar) Min temperature:

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raw 15 bits in units of 0.001 (range: 2.5 to
35.267 = -2.5 to 30.267 °C in steps of 0.001 °C)
    Max temperature: raw 15 bits in units
of 0.001 (range: 2.5 to 35.267 = -2.5 to 30.267
°C in steps of 0.001 °C)                cf. Valid
temperatures: -2.5 to 30.2 degC          Min
salinity: raw 13 bits in units of 1 mPSU (range:
28900 to 37091 mPSU)    Max salinity: raw 13
bits in units of 1 mPSU (range: 28900 to 37091
mPSU)                cf. Valid salinity: 28.9 to 37.1
raw 10 bits in units of 0.977517 permille (range:
0 to 1000 permille)
Temperature residual: -- not transmitted --
transmitted -- Temperature bounds : -- not
transmitted -- Conductivity bounds : -- not
transmitted -- Salinity bounds : -- not
transmitted -- Min fluoro: -- not transmitted -
- Max fluoro: -- not transmitted --
Min DOxy: -- not transmitted --          Max DOxy:
-- not transmitted -- -----[236 bits: 11 -
246] Available bits used exactly === End of
page 2 === PAGE 3: PTT NUMBER OVERHEAD (28-
bit code) -----[8 bits: 0 - 7]
    PAGE NUMBER -----[3 bits: 8 -
10] DIAGNOSTICS in format 2:          Number of
resets: wraparound 2 bits in units of 1 (range:
0 to 3 ) -----[2 bits: 11 - 12] CTD
PROFILE in format 1: End time: max 7 days @
10 mins= 1008 tx as raw 10 bits in units
of 1 (range: 0 to 1023 )
    (recommended sell-by 6 days 23 hours)
Max temperature: -- not transmitted --
Min salinity: -- not transmitted -- Max
salinity: -- not transmitted --          Number of
samples: -- not transmitted --          8 profile
points 8 to 15 (from total of 16 cut points):
1023 bin)          8 x Temperature:
raw 10 bits in units of 0.977517 permille (range:
0 to 1000 permille)
Temperature residual: -- not transmitted --
transmitted -- Temperature bounds : raw 2 bits
in units of 1 lo/hi (range: 0 to 3 lo/hi)
Conductivity bounds : -- not transmitted --
Salinity bounds : raw 2 bits in units of 1 lo/hi
(range: 0 to 3 lo/hi) Min fluoro: -- not
transmitted -- Max fluoro: -- not transmitted -
- Min DOxy: -- not transmitted --
Max DOxy: -- not transmitted -- -----
[234 bits: 13 - 246] Available bits used
exactly === End of page 3 === PAGE 4: PTT
NUMBER OVERHEAD (28-bit code) -----[8
bits: 0 - 7] PAGE NUMBER -----[3
bits: 8 - 10] CTD PROFILE in format 2:
End time: max 3 days 6 hours @ 10 mins= 468
-- Max pressure: raw 10 bits in units of 2
dbar (range: 4 to 2050 dbar) Min temperature:
raw 15 bits in units of 0.001 (range: 2.5 to
35.267 = -2.5 to 30.267 °C in steps of 0.001 °C)
    Max temperature: raw 15 bits in units
of 0.001 (range: 2.5 to 35.267 = -2.5 to 30.267
°C in steps of 0.001 °C)                cf. Valid
temperatures: -2.5 to 30.2 degC          Min
salinity: raw 13 bits in units of 1 mPSU (range:

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28900 to 37091 mPSU)      Max salinity: raw 13
bits in units of 1 mPSU (range: 28900 to 37091
mPSU)      cf. Valid salinity: 28.9 to 37.1
raw 10 bits in units of 0.977517 permille (range:
0 to 1000 permille)
Temperature residual: -- not transmitted --
transmitted -- Temperature bounds : -- not
transmitted -- Conductivity bounds : -- not
transmitted -- Salinity bounds : -- not
transmitted -- Min fluoro: -- not transmitted -
-      Max fluoro: -- not transmitted --
Min DOxy: -- not transmitted --      Max DOxy:
-- not transmitted -- -----[235 bits: 11 -
245]  UNUSED -----[1 bits: 246 - 246]
=== End of page 4 ===      PAGE 5:      PTT NUMBER
OVERHEAD (28-bit code) -----[8
bits: 0 - 7]  PAGE NUMBER -----[3
bits: 8 - 10]  DIAGNOSTICS in format 2:
Number of resets: wraparound 2 bits in units of
1 (range: 0 to 3 ) -----[2 bits: 11 -
12]  CTD PROFILE in format 3:      End time:
max 3 days 6 hours @ 10 mins= 468      tx
as raw 9 bits in units of 1 (range: 0 to 511 )
temperature: -- not transmitted --      Max
temperature: -- not transmitted --      Min
salinity: -- not transmitted --      Max
salinity: -- not transmitted --      Number of
samples: -- not transmitted --      8 profile
points 8 to 15 (from total of 16 cut points):
1023 bin)      8 x Temperature:
raw 10 bits in units of 0.977517 permille (range:
0 to 1000 permille)
Temperature residual: -- not transmitted --
transmitted -- Temperature bounds : raw 2 bits
in units of 1 lo/hi (range: 0 to 3 lo/hi)
Conductivity bounds : -- not transmitted --
Salinity bounds : raw 2 bits in units of 1 lo/hi
(range: 0 to 3 lo/hi)  Min fluoro: -- not
transmitted -- Max fluoro: -- not transmitted -
-      Min DOxy: -- not transmitted --
Max DOxy: -- not transmitted -- -----
[233 bits: 13 - 245]  UNUSED -----[1
bits: 246 - 246]  === End of page 5 ===      PAGE
6 (special diagnostics page sent every 30
transmissions) PTT NUMBER OVERHEAD (28-bit code)
Tag time (mm:ss): raw 12 bits in units
of 1 secs (range: 0 to 4095 secs)      ADC
offset: raw 12 bits in units of 1 A/D units
(range: 0 to 4095 A/D units)  Tag hours:
wraparound 16 bits in units of 1 hours (range: 0
to 65535 hours)  Aborted tx: wraparound
18 bits in units of 1 (range: 0 to 262143 )
Wet/dry status: raw 2 bits in units of 1
(range: 0 to 3 )      Wet/dry fail count:
wraparound 8 bits in units of 1 (range: 0 to 255
)      Body number: raw 16 bits in units of 1
(range: 0 to 65535 )      Max depth ever: raw 15
bits in units of 0.1 m (range: 0 to 3276.7 m)
1 (range: 0 to 255 )      Driest (max wet/dry):
raw 8 bits in units of 1 (range: 0 to 255 )
Number of depth spikes: wraparound 16 bits in
units of 1 (range: 0 to 65535 )      Number of
CTD samples: wraparound 22 bits in units of 1

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	(range: 0 to 4.1943e+06) -----[198 bits: 11 - 208] UNUSED -----[38 bits: 209 - 246] === End of page 6 ===
Deployment	
Immobilisation	Induction dose 09:08 10mls Ket IM @ 200mg/ml Induction time 8 minutes Time at recovery recovered after 32min Anesthesia level 4
Comment	Seal tag YY550 (was YY189) Deployment site: MM057
Tag deployed	2013-01-023T14:09:16 -46.83881 37.80197
Tag retrieved	
First transmission	2013-01-23T12:47:04 -46.835 37.828
Last transmission	2013-02-11T22:36:39 -51.206 30.833